

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Thoi H. Ho, et al.

Art Unit: 1794

Serial No. 10/579,360

Examiner: Erik Kashnikov

Filed: May 10, 2006

For: STABILIZED POLYETHYLENE MATERIAL

TOTAL PAGES: 8

RESPONSE

MS AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Examiner:

This Response is being filed in reply to the Office Action dated August 20, 2009, and subsequent to the interview with the Examiner on March 12, 2009.

The director is hereby authorized to charge any additional fees to the Deposit Account No. 04-1512.

**Statement of the Substance of the Interview with the Examiner**  
begins on page 3 of this paper; and

**Remarks** begin on page 4 of this paper.

**STATEMENT OF THE SUBSTANCE OF THE INTERVIEW WITH THE EXAMINER**

A personal interview was conducted on March 12, 2010. The participants were the following: (1) Rena L. Dye (Supervisory Patent Examiner) (on the phone); (2) Erik Kashnikov (Examiner); (3) Ray Ashburg (Applicant's Attorney), and (4) Carl F. Baker (Technical Expert). Claims 1, 8, 9, and 13 were discussed. The Applicant provided inventive polyethylene pipe samples as well as comparative polyethylene pipe samples tested for their chlorine resistance. The Applicant provided a copy of the assessment of the chlorine resistance of the inventive polyethylene pipes and comparative polyethylene pipes, a copy attached hereto. The applicant further provided a declaration from Dr. Kenneth Oliphant showing a significant and unanticipated improvement in chlorine resistance performance over the current state of the art materials, which was supported by the assessment of the chlorine resistance report. The Applicant further agreed to provide a Declaration to provide support why a person of ordinary skill in the art is not motivated to use ethylene vinyl alcohol as one additional component to the required ethylene alpha-olefin interpolymers of the present invention, and attached hereto is a copy of Carl F. Baker providing support for such lack of motivation.

A copy of the summary of the interview with the Examiner is enclosed herewith.

### **REMARKS**

Reconsideration and allowance of this application are respectfully requested in light of the following remarks.

### **STATUS OF THE CLAIMS**

Claims 1, 8, 9, and 13 are pending.

Claims 1, 8, 9, and 13 are rejected under 35 U.S.C. 103(a) as being obvious over the PCT International Publication No. WO 2003/020821 ('821) in view of U.S. Patent No. 5,032,632.

No claim has been amended. No new matter has been added.

### **THE INVENTION**

The instant invention, as now presented in amended Claim 1, is a pipe consisting essentially of:

an **ethylene alpha-olefin interpolymer**, wherein said ethylene alpha-olefin interpolymer has a density in the range of 0.925 to 0.965 g/cc, a melt index (I<sub>2</sub>) in the range of 0.05 to 5 g/10 minutes; and

an antioxidant system, wherein said antioxidant system consist essentially of;

from 500 to 5000 ppm of 3,3',3'',5,5',5''-hexa-tert-butyl- $\alpha,\alpha'$ ,  $\alpha''$ -(mesitylene-2,4,6-triyl)tri-p-cresol;

from at least 300 to 5000 ppm of Pentaerythritol Tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate), Octadecyl-3-(3,5-di-tert.butyl-4-hydroxyphenyl)-propionate, or combinations thereof;

optionally one or more metal deactivators;

wherein said pipe has an F time in Jana Laboratories Procedure APTF-2 of at least 1000 hours, under the following conditions: pH 6.8 ( $\pm 0.1$ ); Chlorine 4.1 mg/L ( $\pm 0.1$ ); Nominal ORP 830mV; fluid temperature 110°C ( $\pm 1$ ); air temperature 110°C ( $\pm 1$ ); pressure 70 psig ( $\pm 1$ ); flow rate 0.1 US gallons/min ( $\pm 10$  percent).

#### **DISCUSSION WITH REGARD TO SECTION 103(a) REJECTION**

Claims 1, 8-9, and 13 are non-obvious over the over International Publication No. WO 03/020821A1 ("Schramm") in view of U.S. Patent No. 5,032,632 ("Saxton") under 35 U.S.C. 103(a) for the reasons stated below.

An invention that would have been obvious to a person of ordinary skill at the time of the invention is not patentable. See 35 U.S.C. 103(a). As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 82 U.S.P.Q.2d 1385 (2007). Obviousness is a question of law based on underlying factual inquiries. *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). The factual inquiries enunciated by the *Graham* Court are as follows: (A) Determining the scope and content of the prior art; and (B) Ascertaining the differences between the claimed invention and the prior art; and (C) Resolving the level of ordinary skill in the pertinent art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). To reject claims in an application under section 103, an examiner must show a *prima facie* case of obviousness. *In re Deuel*, 51 F.3d 1552, 1557 (Fed. Cir. 1995). Furthermore, all words in a claim must be considered in judging the patentability of that claim against prior art. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970). In addition, to establish a *prima facie* case of obviousness, the following three basic elements must be met: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the

art, to modify the reference or to combine reference teachings; (2) the prior art reference or references when combined must teach or suggest all the claim limitations; **and** (3) there must be a reasonable expectation of success. MPEP § 2143. Finally, if an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

First, there is no motivation or suggestion to combine or modify the teachings of the above cited references to achieve, as now presented in amended Claim 1, a pipe consisting essentially of:

an **ethylene alpha-olefin interpolymer**, wherein said ethylene alpha-olefin interpolymer has a density in the range of 0.925 to 0.965 g/cc, a melt index ( $I_2$ ) in the range of 0.05 to 5 g/10 minutes; **and**

**an antioxidant system, wherein said antioxidant system consist essentially of;**

**from 500 to 5000 ppm of 3,3',3'',5,5',5''-hexa-tert-butyl- $\alpha,\alpha'$ ,  $\alpha''$ -(mesitylene-2,4,6-triyl)tri-p-cresol;**

**from at least 300 to 5000 ppm of Pentaerythritol Tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate), Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate, or combinations thereof;**

**optionally one or more metal deactivators;**

wherein said pipe has an F time in Jana Laboratories Procedure APTF-2 of at least 1000 hours, under the following conditions: pH 6.8 ( $\pm 0.1$ ); Chlorine 4.1 mg/L ( $\pm 0.1$ ); Nominal ORP 830mV; fluid temperature 110°C ( $\pm 1$ ); air temperature 110°C ( $\pm 1$ ); pressure 70 psig ( $\pm 1$ ); flow rate 0.1 US gallons/min ( $\pm 10$  percent).

In support of his argument, the Examiner, Office Action dated August 20, 2009, asserts that Saxton teaches a polymer pipe comprising a hindered phenolic antioxidant, and that Saxton further teaches that one or more of the hindered phenolic antioxidant can be used. However, Examiner fails to recognize that the polymer

composition of Saxton is a copolymer of ethylene vinyl alcohol. Furthermore, the Examiner fails to explain why a person of ordinary skill in the art would be motivated to deviate from the teachings of Saxton, i.e. selecting an inner polymer of ethylene and one or more alpha olefins instead of a copolymer of ethylene and vinyl alcohol as required by Saxton. (US Patent Number 5,032,632; Column 2, Lines 58 to 65). Saxton requires a copolymer of ethylene and vinyl alcohol, and it is generally known to a person of ordinary skill in the art that copolymer of ethylene and vinyl alcohol acts differently than an inner polymer of ethylene and one or more alpha olefins. Not only does Saxton fail to provide support for the Examiner's argument, but Saxton also teaches away from the present invention by requiring a different polymer composition. Furthermore, the examiner doesn't provide any reasoning for his proposed combination of Schramm and Saxton. Therefore, not only there is no motivation or suggestion to combine or modify the teachings of the above cited references to achieve the present claimed invention, but Saxton also teaches away from the present claimed invention.

Accordingly, all of the required elements to establish a *prima facie* case of obviousness have not been met; therefore, the Examiner has failed to establish a *prima facie* case of obviousness.

Furthermore, if an independent is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F. 2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Claims 8-9, and 13 depend from Claim 1; therefore, Claims 8-9, and 13 are non-obvious.

Accordingly, the above 103 rejections should be removed.

**CONCLUSION**

In view of the forgoing, Applicant respectfully requests that the above 103(a) rejection be overturned and that the instant application be allowed to proceed to issuance.

Date: April 13, 2010

Respectfully submitted,  
  
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